

## THE IMPACT OF THE PANDEMIC ON THE ECONOMY IN IRAN

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### Introduction

The coronavirus (COVID-19) outbreak is becoming a global issue as the virus spreads dramatically in most of the countries. Like any other similar global issue, especially those related to global health, such a human tragedy will affect the global economy (Dana, Etemad, and Wright 1999; Ahani and Nilashi 2020; Dai, Hu, and Zhang 2020; Evans 2020). Meanwhile, startup companies are also profoundly affected by the outburst of this global issue. According to a series of well-known definitions of startups, these companies are temporary organizations who search for profitable, repeatable and scalable business models (Salamzadeh 2015; Salamzadeh and Kawamorita Kesim 2015). A question remains unanswered, “What are the major challenges that these organizations could/shall face, while they are temporary, fragile and highly sensitive companies that deal with the highest uncertainty level, especially during such a pandemic?” (Hudecheck et al. 2020; Buheji and Ahmed 2020); however, some scholars such as Fuentelsaz et al. (2015) and Jiménez et al. (2015) believed that these formal institutional factors could affect the level of opportunity-based and necessity-based entrepreneurship. More recently, Kuckertz et al. (2020) investigated the financial impacts of the crisis on startups, and overlooked the other essential challenges.

The World Economic Forum ([2000](#)) announced its platform<sup>1</sup> for companies around the world to help them face COVID-19 pandemic. Their goal is to help resource and support mobilization from every single interested entity to face this challenge. Simultaneously, governments have offered different types of packages (Megginson and Fotak [2020](#)). For instance, the US government considered a \$2.3 trillion rescue package to minimize the effect of this pandemic. Despite their importance, a small portion of this package (estimated amount: \$337 billion) was dedicated to small business loans and grants in general. The amounts of rescue packages for small businesses and startups were similar in other countries. For instance, the German and French governments respectively dedicated rescue packages of 2 and 4 billion euros, and the UK established a £500 million Future Fund to support small businesses, half of which came from private sources. According to a report released by the OECD, most of the countries considered some policy responses to help startups face the pandemic; however, those responses and initiatives were also marginal. In Turkey, for example, technological ventures in Techno Parks were exempt of rent for only two months. Most of the other initiatives and support measures were dedicated to more mature SMEs rather than startups. Saudi Arabia, among the most supportive countries in the region, dedicated \$13.3 billion as a stimulus package for SMEs, most of which about \$8 billion was allocated to banks and financial institutions to delay their loan payments. There is limited information about the other countries in the Middle East in global reports (OECD. [2020](#)). Thus, startups remained among the most vulnerable companies in this battlefield. While some startups were offering new solutions to handle this global challenge, many of them were entirely losing their customers. For example, we were witnessing more exceptional innovations in health-tech startups.

Nevertheless, the situation is more complicated in emerging economies; Since the pandemic is “dramatically worsening the economic outlook for emerging economies” (Herrero [2020](#)), like Iran, India, Brazil, Russia, Singapore, Turkey, and Mexico are experiencing the next waves of the pandemic (Kawamorita et al. [2020](#); Herrero [2020](#)). As these countries have priorities about improving their limited public health capabilities, and also have tighter mobility restrictions, most of their resources were allocated to their basic needs (Ojha and Shubha [2020](#)). Besides, the IMF is expecting the emerging world to enter a severe recession in 2020. Issues such as a significant decrease in capital inflows, fewer systematic markets, higher investment risks, as well as their reliance to export and tourism, made these countries more susceptible than developed ones (Herrero [2020](#)). All of the mentioned issues led to paying less attention to SMEs in general, and specifically to startups in countries like Iran.

Moreover, Iranian policymakers are mostly trying to help medium-sized, and large firms survive in order to save the national employment rate (Ahadi and Kasraie [2020](#)). Therefore, startups suffered more from these contextual factors of the heavily-sanctioned economy. According to the data published by Iran’s Statistical Research and Training Center, thirty-eight percent of the Iranian firms were inactive for at least two months in the last six months. Also, the data showed a significant drop in liquidity, human resources and production rates of the startups in general. A significant number of startups were shocked in the first months of the pandemic. Some of them took precautionary cuts, some froze their activities, and some halted their services. Besides, Iranian startups do not have access to international customers, and therefore their markets are generally limited to the national customers, which is a significant issue. Consequently, it seems necessary for Iranian startups to understand and address their challenges better, as a preliminary stage in managing crisis (Etemad [2020](#)). As Jack Ma [the founder of Alibaba] mentions: “*If I*

want to write a book that will be “Alibaba 1001 mistakes”.”, because startups could learn from each other’s challenges and mistakes more than the ways they survive, as their survival depends on quite a lot of different elements.

Therefore, this research is conducted to investigate the main challenges of high tech startups in a heavily-sanctioned developing economy, i.e., Iran, in which an ever-growing startup ecosystem was shaped during the past decade (Rezaei, Dana, and Ramadani [2017](#); Salamzadeh and Kesim [2017](#)). The main research question is then: “*What are the main challenges faced by the Iranian startups during the coronavirus pandemic?*”. In order to answer this, we first reviewed the existing literature on the topic. Then, we interviewed co-founders of fifteen startups, which experienced a monthly growth rate of more than ten percent in the past year. Afterwards, the authors analyzed the gathered data, and the findings are presented. The paper concludes with some remarks for future research, as well as some implications for startups and policymakers.

## Literature review

### 2.1. Entrepreneurs and the global crisis

Given the recency of this pandemic, publications in this domain are mainly focused on health rather than business issues. Even, a few studies that have pointed out subjects such as business opportunities (Buheji and Ahmed [2020](#)), occupational risks (Koh [2020](#)), continued addressing the issues at the macro-economic level. Moreover, there was a little stream of research on how nascent entrepreneurs act in the time of global crisis. Some of the relevant studies which investigated entrepreneurial activities in the time of crisis- at an individual level- include Bullough and Renko ([2013](#)); Doern, Williams, and Vorley ([2019](#)); Egan and Tosanguan ([2009](#)); Haynie and Shepherd ([2011](#)); Shepherd and Williams ([2014](#)); Terjesen, Guedes, and Patel ([2016](#)); Williams and Shepherd ([2016a](#)); and Williams and Shepherd ([2016b](#)). For instance, Davidsson and Gordon ([2016](#)) investigated nascent entrepreneurs' persistence through the global crisis. They found the trend that the number of startups had decreased after the global crisis and argued that it might be due to potential entrepreneurs' lack of will to initiate a startup activity. Most of these studies were conducted to evaluate less severe economic crises than the one we are facing at this interim. The situation in which we faced very critical limitations which went beyond a typical global crisis. Moreover, a body of literature has paid attention to startup issues during the crisis at business (e.g., Latham [2009](#); McDonald and Eisenhardt [2020](#)) and society (Bennett and Nikolaev [2020](#); Fairlie [2013](#)) levels.

Keeping the points suggested by the above-mentioned works, we tried to include and review the comments and suggestions published as conceptual notes or policy recommendations, including the relevant facts and figures. Just a couple of months have passed, and startups faced a series of challenges ranging from daily customer retention issues to fundraising problems. Nevertheless, there are currently a few published academic manuscripts and publications regarding their challenges (Kuckertz et al. [2020](#)). As noted by TechCrunch report, they were urged to “*prepare for the worst and cut spending.*” Then, it is evident that fundraising institutions and venture capital funds were warning startups and suggested that they avoid any developments according to their approved plans; instead, they asked startups to follow strategies like downsizing and cost reduction (TechCrunch, [2020](#)). According to a recent study (CBInsights [2020](#)), a twenty-two percent decline in the first quarter of 2020 was projected globally, compared to the same period in 2019. The same report showed a fall in the Asian based seed funding, which is more severe.

This remains a challenging issue for seed-stage startups, which continued striving to survive in this challenging era. In the Iranian entrepreneurial ecosystem, according to the report published by Iran's Statistical Research and Training Center, startups cut their expenses in order to survive. Moreover, just a few state-backed venture capital funds are still investing in early-stage startups. The number of investments in startups has fallen dramatically during the last six months. As reported by TechinAsia (2020), at the same time, some countries including South Korea acted differently. They insisted to use technology startups to fight this pandemic. Even, a series of startups have started actions, such as developing diagnostic kits and using artificial intelligence, to decrease the infection rate and manage the crisis. The interesting point is that the government has opened new windows of opportunities to collaborate more closely with agile startups. Unleashing the power of startups to manage the pandemic in South Korea might be due to the government's efforts, and more specifically, the actions taken by the Ministry of SMEs and Startups. The European startup ecosystem was also moving fast and did not want to lose time. For instance, the tech and startup community in Norway launched an online hackathon, between March 27th and 29th, 2020, to face the COVID-19 outbreak (EU Startups, [2020a](#)). In Italy, the Fintech District, a leading open ecosystem for fintech startups, warned that the fintech startups of Italy should cope with the current pandemic. Therefore, they prepared a series of initiatives to handle fundraising and consultancy issues of the Italian fintech startups (EU Startups, [2020b](#)). In the United States, the situation was almost the same. Although the viral effect of the COVID-19 has been dramatically revealed in the United States, the infrastructure was more appropriate to use the competencies of startups. For instance, more than twenty-five Y Combinator based biotech and health-tech startups were actively involved in responding to the outbreak (Y Combinator [2020](#)). Among the growing startups, several were at the seed stage and had difficulties in raising funds. In Iran, some startups have provided solutions regarding harnessing the pandemic. Moreover, the National Innovation Fund has offered them new funds and grants to help them develop new solutions, products and services, such as online tracking of the infected individuals, Nano masks, medical instruments, diagnostic kits, and disinfectants. Most of the supports were provided by the National Innovation Fund and the Vice-Presidency for Science and Technology. Nevertheless, according to Eightesad Online [a well-known Iranian economic analyst institution,] "*Fifty percent of Iranian startups go bust under Covid-19*".

Just a few recent studies have concentrated on the challenges of startups during this crisis. For instance, Kuckertz et al. ([2020](#)) used bricolage theory to investigate the financial challenges of startups in this period. They proposed a framework for startups to manage such crises and the potential responses of startups to become more resilient. However, their approach was mainly focused on the economic aspects of startups. Eggers ([2020](#)) also focused on small and medium-sized enterprises and tried to enlist a series of challenges and opportunities for these entities during the crisis by conducting a literature review. Finally, Maritz et al. ([2020](#)) listed a series of narratives from multiple resources to highlight how entrepreneurs could turn challenges into opportunities in an Australian context during the crisis; however, their study did not pay attention to any challenges. In sum, startups were experiencing several challenges to survive or hopefully, keeping track of their extraordinary growth during this pandemic. As there was no specific treatment for the COVID-19, no one could estimate how long this would take to reach a normal situation. Therefore, we should identify the challenges and consequently devise some policies and suggest some solutions for handling those issues. Otherwise, the global economy will indeed experience an unfortunate situation.

## 2.2. The Iranian context and startups

### 2.2.1. General context

The Iranian startup ecosystem has grown in terms of both quality and quantity in the past decade (Ojaghi, Mohammadi, and Yazdani [2019](#)). The enterprising communities and the entire startup ecosystem have taken several steps and became more mature during this period (Yalcintas and Alizadeh [2020](#)). This evolutionary trend was well-presented in a study by Salamzadeh and Kesim ([2017](#)). They have described how traditional firms have turned to startups and new technology-based firms within four decades. According to this study, the emergence of entrepreneurship in its modern sense went back to the late 1990s, which were followed by an ICT based startup boom in the early 2000s. During the 2000s, entrepreneurship was expanded as an academic field, and the government introduced several initiatives. In the 2010s, this trend was accelerated by all the players of the Triple Helix, i.e., universities, industries, and the government (Guerrero, Urbano, and Salamzadeh [2014](#); Kawamorita et al. [2020](#)). More recently, several leading startups, such as Snapp, Digikala, and the like, have grown dramatically and changed the whole startup ecosystem (Beigi, Nayyeri, and Shirmohammadi [2020](#)). Currently, several key players exist at different levels, including international (e.g., international venture capitalists/venture capital funds; international startup studios, and non-resident Iranian experts and entrepreneurs), national (e.g., vice-presidency for science and technology; ministries; universities; funds; national elites foundation; Iran lab expo; national technomart of Iran; Iranian knowledge-based leaders federation; export development & technology exchange corridor; Labs' net; the center for progress and development of Iran), industrial (e.g., innovation centers; innovation factories; sector-specific accelerators, venture capital funds, and incubators), firm (e.g., new technology-based firms (NTBFs)- knowledge-based firms; startups; creative firms), the team (e.g., independent and supported teams), and individual (e.g., freelancers; intended/potential entrepreneurs; young talented individuals) players. However, as it is mentioned previously, the Iranian entrepreneurial ecosystem has changed dramatically after the coronavirus pandemic. The number of failed startups has increased, and there have been limited options for startups to fund their entrepreneurial journeys, such as the state-backed venture capital funds, the Vice-presidency for Science and Technology, and the National Innovation Fund. Moreover, some of the accelerators and incubators were offering customized services, which led to a limited number of success stories, most of which were dealing with health-related solutions.

### 2.2.2. Challenges faced by Iranian startups

Startups generally face several types of challenges in both local and global economies: In the one hand, there are several indigenous and exogenous factors which could turn into challenges for startups. On the other hand, the coronavirus pandemic has already affected the national and global economies (Reeves, Lang, and Carlsson-Szlezak [2020](#)). Both developing and developed economies are still suffering from such a crisis and are forecasting new types of recession. Issues such as threatening their performance and highly turbulent economic situations made these entities more vulnerable during such a global crisis (Kuckertz et al. [2020](#)). Therefore, crisis management has become a critical issue to be taken into account by startups. For managing such a crisis, startups should get prepared. To do so, they must know where they stand before choosing which actions to take or which ways to go. Thus, understanding their challenges has become mandatory for these innovative entities (Etemad [2020](#)). Nevertheless, just a few recent studies have already published in this domain, most of which were investigating the challenges in the world's top economies, such as Germany (e.g., see, Maritz et al. [2020](#); Kuckertz

et al. 2020), and a few studies have previously investigated the challenges faced by startups in emerging economies like Iran (Eggers 2020). Based on the mentioned above issues, we categorized these challenges into two groups: (i) general challenges, and (ii) crisis-related challenges.

#### 2.2.2.1. General challenges of Iranian startups

These challenges are a function of the business environment's general conditions. For instance, according to Salamzadeh and Kesim (2017), Iranian startups faced challenges related to financial issues, human resources, and support mechanisms. They considered a lack of access to various types of financing, such as IPOs, bank credits, venture capital funds, and seed finance, as the most critical financial challenges of startups. Hopefully, during the last five years, the situation has improved to a great extent, and only the possibility of IPO has remained as a financial challenge. It is noteworthy that the government has recently announced that five leading startups will be entered into the Tehran Stock Exchange until 2021. The lack of team management skills, as a human resources management issue, remained a challenge for Iranian startups. This might be due to the cultural aspects of the country, as Javidan and Dastmalchian (2003) called it the "*Land of Individual Achievers*". In the last category, the ecosystem still lacks enough support for securing intellectual property rights. In another study, Kanani and Goodarzi (2017) highlighted the government's challenges and mentioned that lack of enough knowledge about startups activities has led to the enactment of irrelevant rules and regulations. Generally, this was a significant issue, and still is in some domains. Nevertheless, we were witnessing that the Vice-presidency for Science and Technology has paved the way for startups to grow more quickly by removing irrelevant rules and regulations, and dedicating special offices for handling their insurance and tax-related concerns. Moreover, Haghghi et al. (2018) conducted a gap analysis to measure the challenges of ICT-based startups in Iran. According to their study, startups have legal and infrastructural concerns. In sum, there are a few studies which have already paid attention to the general challenges of Iranian startups.

#### 2.2.2.2 Crisis-related challenges of Iranian startups

The few studies on challenges of startups in emerging economies such as Iran (Kawamorita et al. 2020; Herrero 2020), have mainly focused on the pre-crisis period (Kuckertz et al. 2020). Given the fact that information on the immediate impact of the crises on Iranian startups is not available, the authors reviewed some of the relevant publications and listed the main challenges through a qualitative research design in the next sections of this manuscript. As a highly sanctioned emerging economy, Iranian startups have faced several challenges, even before the coronavirus pandemic. For instance, as the sanctions increased, several challenges were imposed on Iran's entrepreneurial or startup ecosystem (Afshar Jahanshahi, Brem, and Shahabinezhad 2018). Iranian startups still face a series of challenges due to a lack of access to international markets, which could provide them with several profitable opportunities (Ranjbari, Esfandabadi, and Scagnelli 2019). As these sanctions were an integral part of the economy in the past four decades (Chubin 2009), the previous Global crisis did not affect Iranian SMEs and startups as much as this pandemic did (Ahadi and Kasraie 2020). However, issues such as the depreciation of the local currency (Salamzadeh 2018), limited access to international funds and markets (Tadjalli 2018), and challenges faced by female entrepreneurs (Cinar, Hienkel, and Horwitz 2019) were among the most significant challenges which affected the startup ecosystem in the past decades. Nevertheless, there were several opportunities existed exploited by startups during these crises. For example, improvements in the Blockchain and Fintech industries were

outputs of the pivots made by Iranian startups during these crises (Assarzadeh and Aberoumand [2018](#)). In sum, given the lack of data on how Iranian startups were acting during the pandemic, limited evidence exists regarding their challenges. Therefore, this study resorts to qualitative research design in order to shed light on those significant challenges.

## Research methods

### 3.1. Research design and procedures

As an inductive research, this study uses two stages of coding techniques to lower the risk of circularity, which is higher in the deductive research approach (Groenland and Dana [2020](#)). This approach allowed us to reach a better understanding of the challenges of Iranian startups during this crisis. This research follows a qualitative research design due to the exploratory nature of its research question (Hlady-Rispal and Jouison-Laffitte [2014](#)). In order to lower the risks associated with the qualitative approach, the following actions are considered (Dana and Dumez [2015](#)).

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### 3.2. Sources of data

The collected data were gathered from both primary resources (including observations, interviews, and a focus group session) and secondary sources (including websites, press releases, reports, and databases of well-known organizations such as the World Economic Forum) (Guerrero, Urbano, and Salamzadeh [2014](#)). We used a semi-structured interview protocol to interview co-founders of fifteen startups, which experienced a monthly growth rate of more than ten percent in the past year. Therefore, in-depth interview techniques were considered to reach more appropriate data (Dana and Dana [2005](#)). Startups were facing several types of challenges in this pandemic. The variety of the difficulties was so great, and thus there were fragmented issues proposed by startup co-founders as their challenges. Therefore, we had to improve the interview protocol accordingly based on interviewees' attitudes, feelings, opinions, intentions, actions, and experiences (Dana and Dana [2005](#); Castillo-Montoya [2016](#)). First, we asked general questions like, *what are the main challenges you faced during the coronavirus pandemic? Please explain; Is there any specific challenge that you could consider as critical for your success or failure? Please explain*. Then, we added more specific questions in the second round. For example, *what are the main financial challenges you experienced in this period? Do you have any problems with your investors or to raise fund? Please explain*. The startups were selected from the list provided by the ecosystem .ir, as the leading database for Iranian startups. The selected startups had to fulfil the following criteria for being selected: (i) being listed in the ecosystem.ir, (ii) founded in the last three years, (iii) monthly growth rate of ten percent in the last year of operation, and (iv) passed their break-even point. To do so, we listed the qualified cases, and we reached twenty-three cases. We contacted their co-founders and shared more information about our aims and objectives. Then, we asked for their consent and interest to get involved in this study. Among them, only fifteen cases accepted to contribute. At least two of the co-founders of the selected startups were interviewed. Table 1 shows information regarding the selected startups.

Table 1. Selected startups.

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Based on the fact that co-founders' values and insights might be affected by the COVID-19 crisis, we considered the issues raised by Selmer and Littrell (2010), who argued that business managers might change during the global crisis. We considered this issue in the interview sessions. Therefore, we tried to consider the fact that if they had the same work values before this pandemic. Moreover, we considered the contingencies raised by Olivas-Luján, Harzing, and McCoy (2004). Then, we used data triangulation, as a test of validity, to corroborate the findings (Halcomb and Andrew 2005). We concentrated on a limited number of startups, which shows that instead of generalizability issues, we were conducting local research and were not looking for a global generalization (Mook 1983). Instead, we aimed to identify the challenges that the selected Iranian startups were facing. The interview sessions took an average of 75 +/- 15 minutes in each round. Online Skype meeting sessions were held to interview the interviewees to comply with the social distancing rules and regulations issued by the government. With the interviewees' consent, we took notes while asking questions and recorded the meetings for further processing (Yin 2008).

### 3.3. Data analysis

In order to analyze the data, we used two step coding method. Then, the first-order and second-order codes were determined, and the final framework shaped. To make sure the findings and codings were appropriate, we asked two other scholars to do the coding based on their approach. Therefore, we provided them with case histories and the list of narratives and first-order codes. The overall agreement rate was higher than eighty-eight percent. Table 2 shows the first and second-order codes. Finally, we held an online focus group session to finalize the proposed framework. In this session, we invited five of the previously interviewed interviewees, two professors, and three government officials. During this semi-structured session, we ensured that the second-order codes and the aggregate dimensions were labeled well. We used an online focus group session due to several benefits associated with this type of session, such as less time-dependency and quickness. Participants received an invitation email as well as a text message with relevant instructions, the date, and time to take part in the session. Before the session, we assured them of their confidentiality and asked for their permission to let us take notes during the session. After reading the guidelines and entering the online room, the topics were divided into six sections according to the framework's early draft. Before each section, a brief review of the main findings was presented to the participants. Afterwards, the authors asked them for their comments and suggestions about each of the sections. Then, we reviewed the first-order codes and the key narratives and asked them for their suggested second-order and aggregate dimensions. We asked additional questions depending on the emerged themes during the session.

Table 2. Data structure.

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## 4. Findings

Startups suffer from several issues, which makes them struggle harder for existence (Salamzadeh and Kirby 2017). These challenges ranged from minor issues like finding appropriate distribution channels to major ones like losing their customers. We categorized those challenges as follows.

### 4.1. Financial challenges

Financial matters were among the most global challenges of startups during their whole lifecycle. In the one hand, starting from an idea, all needed different types of financial support- such as

bootstrapping, family, friends, and fools, angel investment, and the like- to flourish and become more mature (Knight [1985](#); Lee [2019](#); Talaia, Pisoni, and Onetti [2016](#); Salamzadeh and Kesim [2017](#)). All these funding alternatives were associated with many critical issues to be taken into account. Now, think that investors were taking their steps back and avoiding further investment, the market would ne tricky, and the uncertainty level would remain quite high (Brown and Rocha [2020](#)). As one of the interviewees argued: “*We were just concentrated on meeting our KPIs, while this happened, and instead of being more focused on our plans, we had to hold different meeting sessions with our partner venture capital fund. We were witnessing a dramatic decrease in sales, and simultaneously, we had to negotiate, negotiate and negotiate...*” (Case #12). On the other hand, some other financial issues existed like handling the decrease in daily orders, cash flow management, and lower budgets, which made everything harder for startups to survive (Kask and Linton [2013](#); Boot et al. [2020](#)). As another co-founder mentioned: “*we had to pay the salary of our employees and cover our fixed costs, while a significant drop happened in our sales... it was confusing... our customers also had several new needs which we had to take into account*” (Case #1). These might lead to lower customer acquisition and retention rates, which makes startup co-founders think more creatively. Also, it urged them to use their management capabilities (Ruiz-Jiménez and del Mar Fuentes-Fuentes [2016](#); Leonelli, Masciarelli, and Fontana [2019](#)) in designing more creative marketing campaigns, finding new marketing mediums and distribution channels. Last but not least was startups' commitment to financial institutions and banks, which was related to government policies (Chohan [2020](#)). Public funds that have invested in such technology-based ventures will also want to get the highest output from their R&D expenditures (Diachon, Menzies, and Gasse [2007](#); Afcha and López [2014](#)). As another interviewee mentioned that “*banks were calling us to pay the instalments of our loan... the Iranian new year was close, and they had to close the accounts before the new year... we had to pay all we earned to them and asked suppliers to be more patient*” (Case #3).

## 4.2. Human resources management challenges

Human resources management remained a challenging topic for startups that were in their early stages, and those who had limited resources to recruit talented human resources (Siemens [2010](#)). Moreover, generally, human resources practices were not affordable for these small and fragile entities (Salamzadeh, Tajpour, and Hosseini [2019](#)). With the advent of the Coronavirus, the situation has become more complicated for startups. Some of them were cancelling their contracts, and others were firing their valuable human resources, which, according to the resource-based view, were the sources of inspiration and competitive advantage for them (Madhok and Marques [2014](#)). One of the interviewees mentioned that: “*we had to fire half of our employees including some of the main team members to whom we had to pay more than others... it was regrettable to see that we are losing our team members... however, the co-founders remained!*” (Case #5). On the other hand, the other startups which found a solution might need to recruit new human resources, as it happened for Digikala- the leading online store in Iran. They needed to hire from a big pool of human resources, which was tricky at first glance, but it could have been harder to choose the right individuals. Otherwise, they needed to cancel their contracts with those who were recruited by mistake soon. Thus, they would lose those individuals on whom they have invested a considerable amount of time and money in training them. Such decisions are mainly made based on entrepreneurs' social identity and type of decision making (EstradaCruz, VerdúJover, and GómezGras [2019](#)). Another interviewee argued that: “*We are hopefully recruiting new staff, although we told them from the beginning that it might not take so*

*long, and asked them to consider it a temporary job opportunity... this was both good and bad... it was good as we were honest and bad as they might be less emotionally attached to our team” (Case #7).*

#### 4.3. Support measures and mechanisms

There were several types of support measures and mechanisms in most of the emerging startup ecosystems (Tello, Yang, and Latham [2012](#)), like Iran. A high number of startup accelerators, incubators, and venture capital funds are still operating in this startup arena. However, most of them acted more cautiously and became risk-averse due to the volatile situation of the capital market after the COVID-19 pandemic (Ramesh, Siddaiah, and Joseph [2020](#)). This might have been related to their risk-taking capabilities (Tsai and Luan [2016](#)). According to one of the interviewees: “*our angel investors asked us to stop spending the money and propose a new plan... that was just like a heart attack to the body of our startup... we need time to do so, and how could we stop our operations... then, we decided to limit our activities... we added a post on our website and also sent a newsletter to our customers... I hope they understand us*” (Case #6). Government bodies were considering plans which were full of trial and errors. As mentioned earlier, different countries were allocating funds to help vulnerable individuals and small firms. Another interviewee mentioned that: “*the social security organization and other similar governmental bodies do not have enough flexibility... although they wish they could help us, they asked us to pay the insurance fee... it seems that the government is asking them to consider some initiatives... also, the government would pay some loans to small businesses... this looks perfect!... but we are not even considered as a small business*” (Case #8). Nevertheless, most of the seed-stage startups were not even considered as small companies, as they continued searching for a profitable business model and were not generally making a profit out of a particular market. Instead, they remained like passionate plants that were only thinking about how to grow faster. Moreover, some of the entities, like equity funds and venture capitalists, were cancelling their contracts. They stopped paying the budget they had to allocate since they already had the right to do so based on the signed termsheets. Such issues made startups more fragile and sensitive (Ross, Strevel, and Javadizadeh [2020](#)). An interviewee also mentioned that: “*we did not have enough money to hire an excellent legal consultant, and then we overlooked the legal commitments we accepted by signing the extended contract with our partner, i.e., the venture capital fund... now they are asking what is legally acceptable, but if we agree, we will lose a great amount of our startup!*” (Case #11).

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#### 4.4. Market and marketing challenges

Startups are still challenged by a lack of market and marketing research in this period more than ever before (Salamzadeh and Kesim [2017](#)). The market they studied before has changed to a great extent. Moreover, their market penetration strategies might not work anymore. An interviewee mentioned that: “*we have to consider a pivot at this stage since our market is becoming different. We cannot render our services to our previous customers due to the limitations such as social distancing rules and regulations imposed by the government... we took them for granted, and we are planning for new market research... who knows how long would it take, and if we insist on this market, we will be a loser*” (Case #13). Thus, they had to revise their market and marketing plans according to the new facts in the market (Zinger and LeBrasseur [2003](#)). To do so, they needed to consider further segmentation, target market research, and positioning in a newly shaped market. As mentioned earlier, in some countries such as South Korea, the government-startup nexus helped some startups survive and experience

a dreamy growth rate. This was the very point that one could see the startup pivot scene. Thinking out of the box remained a challenging issue to be considered by startup co-founders; otherwise, they might lose the competition and fail faster. “*We had discussions with the government officials and convinced them to promote our services in line with the social distancing rules... we started delivery of goods and services and helped the government handle the traffic in the streets... our customer base is growing each day, and we are trying to handle this market push effect*” (Case #9), another interviewee argued.

#### **4.5. Crisis management challenges**

Sequoia Capital dubbed this pandemic “*the black swan of 2020.*”<sup>2</sup> In fact, a lack of crisis management skills remained as another challenge for startup owners in facing this black swan (Yue et al. 2020). Startup teams are generally composed of young talented members with a lower level of prior experience and knowledge (Allen et al. 2016). This made crisis management even harder for these entities. One of the co-founders mentioned that: “*We did not and still do not have sufficient skills to manage such a crisis... it seems that we are not alone... we keep tracking the news about the similar startups around the globe, and think about how we could manage it... we absolutely need to know more about such issues...*” (Case #2). Some of the co-founders struggled about their co-founders' agreements as well as some terms in their contracts with other parties, like venture capital funds. These issues made them less concentrated, and therefore they lost the chance to navigate the business. “*We have many challenges with our team members... some of them are stressful and worried about the future... some want to leave the team by selling their share to other members... this is really unbelievable for me... we used to be a good team in the last three years*” (Case #4), an interviewee argues. Thus, stress management, time management, and other sub-categories of crisis management could have been helpful for startup co-founders. Some scholars such as Baluku, Kikooma, and Kibanja (2016), and Baluku, Kikooma, and Otto (2018) have pointed this issue by elaborating on psychological aspects as a vital element for startups. Some startups have already ended their business in this short time after the pandemic. It seems that it was due to the lack of such skills. Turning these threats to opportunities needs a set of entrepreneurial skills the co-founders already had or must have to survive the business (Buheji and Ahmed 2020). Generally speaking, supply-side disruptions could endanger the life of startups. However, it depends on their reaction to such a crisis. Another interviewee argued that: “*we believe in our team and will find a way to pass through this hard time... it was and will never be like this*” (Case #7).

#### **4.6. Further challenges**

Our findings included the challenges that could not be classified under a particular category. For instance, their current business models did not work correctly, and they required significant revisions to continue their activities. As mentioned by one of the co-founders “*we need to revise all the building blocks of our business model to cope with the conditions imposed by the pandemic*” (Case #15). Among the other substantial challenges that startups faced in this interim, were their liabilities and commitments to customers and all other third parties. They have already signed a series of contracts, and they should have found some ways to deal with their responsibilities. As one of the co-founders mentioned: “*we used to be responsible for our commitments and will remain so... we had several meetings to specify our commitments and to find some ways to handle them... Although we had problems and would still have some, we would rather be trustable than profitable in this period.*” (Case #14). Moreover, they faced supply chain issues, as they required to deal with logistics for service or product provision

(Morrison [2020](#)). The customers should have not to be missed (see section 4.4). They had to find a reasonable solution to keep in touch with their customers and make sure that they understand the challenges. Another interviewee argued that: “*the logistic management is hard in this interim... we need to find new staff to handle the orders... otherwise, we would become the second or the last choice for online customers... it seems easy to convince our customers, but in fact, it is not...*” (Case #10). Besides, some exogenous elements would affect their existence. For instance, facility closure and government social distance policies could profoundly affect a typical startup's daily business processes.

## 5. Conclusion

Startups in emerging economies generally are facing a series of challenges which could affect their success or failure (Salamzadeh and Kesim [2017](#)). Crises could also change these challenges and priorities (Herrero [2020](#)). The coronavirus pandemic has affected almost every single building block of their evolving business models. Then, startups should be more focused on different aspects of their business as well as their connection to the business environment (OECD. [2020](#)). In other words, startups in emerging economies face some general challenges, which are endogenous and exogenous. Moreover, they might face a series of specific challenges during a crisis like a coronavirus pandemic. Although a few scholars marginally studied the first type of challenges, the second type is rarely investigated (Kuckertz et al. [2020](#)), especially in emerging economies such as Iran. Therefore, this study attempted to identify the main challenges of Iranian startups in this coronavirus pandemic. Findings of this research could be considered as a cornerstone for startups to understand their real challenges better in order to become able to face the coronavirus pandemic and manage the impacts of the crisis on their startups. Thus, the authors interviewed co-founders of the fifteen selected startups in Iran and also held a focus group session to finalize the categories. We concluded that startups were facing six types of challenges, including financial challenges, human resources management challenges, support measures and mechanisms, marketing challenges, crisis management challenges, and further challenges.

As mentioned above, this research mainly focused on the identification of the second type of challenges, i.e., crisis-related challenges, faced by Iranian startups during the pandemic. In contrast, the first type of challenges was previously studied by Kanani and Goodarzi ([2017](#)), Salamzadeh and Kesim ([2017](#)), and Haghghi et al. ([2018](#)). Generally, our findings regarding financial challenges were significantly in line with a recent study conducted by Kuckertz et al. ([2020](#)), who used a bricolage approach to investigate the financial challenges of startups in times of crisis in a developed economy, i.e., Germany. Nevertheless, their study overlooked the other types of challenges, which were of paramount importance, such as the issues startup teams faced, which might have even led to their failure. Moreover, Eggers ([2020](#)) explored the challenges and opportunities for SMEs in times of crisis. He reviewed sixty-nine papers that studied the challenges faced by SMEs in previous crises and categorized them in three main categories, i.e., finance, strategy, and the institutional environment. His findings were also limited to the previously published manuscripts and lacked paying enough attention to “*startups*”. Besides, our findings were in line with Maritz et al. ([2020](#)) insights, which were mainly focused on turning these challenges into opportunities by entrepreneurs within an Australian context. They identified a series of narratives from fragmented sources regarding entrepreneurial aspects of responding to the crisis.

More specifically, among the financial challenges which were also mentioned by OECD. (2020) and Kuckertz et al. (2020), fundraising problems, cash flow problems, and financial commitments and liabilities were of paramount importance for Iranian startups during the pandemic. Kuckertz et al. (2020) found that German startups had challenges such as cutting their expenses, improving their cash flows, and accepting governmental emergency aid packages. Managing financial commitments and liabilities was considered critical for Iranian startups which were implicitly pointed out by Diochon, Menzies, and Gasse (2007) and Afcha and López (2014) during a similar crisis in developed countries. Hiring and firing team members during the crisis were the most critical human resources challenges faced by Iranian startups. Among the few relevant publications (e.g. OECD. 2020), most of them were focused on firing issues (Etemad 2020), while hiring key team members could have been more vital for startups to survive during the pandemic. Iranian startups also had to face the risk aversion of accelerators, venture capital funds and other support mechanisms, as well as discontinued/cancelled contracts. Ramesh, Siddaiah, and Joseph (2020) and OECD. (2020) also found that support mechanisms acted more cautiously during the pandemic. Moreover, irrelevant governmental initiatives and limited rescue packages which were poorly tailored for startups were among the critical challenges for Iranian startups. As mentioned earlier, most of the governments dedicated a small portion of their rescue packages to SMEs (e.g. see, World Economic Forum 2000; Megginson and Fotak 2020). Substantial changes in the market and the need for creative marketing also remained as critical challenges faced by Iranian startups. Iranian startups lacked general crisis management, conflict management, as well as entrepreneurial skills, which made them more vulnerable while facing the pandemic. Startups in other countries have also experienced similar issues (e.g. see, Herbane 2019; Yue et al. 2020). Last but not least, issues such as revising their business models, handling multiple responsibilities, managing their supply chains were among the most critical challenges for Iranian startups. Some of these issues were implicitly referred by Herbane (2019) and Morrison (2020) in similar contexts. Finally, governmental responses to the crisis were both irrelevant and insufficient, which made the playground less prepared for startups to run their business.

## 5.1. Directions for future research

Future research could measure the impact of the mentioned challenges on the success or the failure of Iranian startups in various fields, such as Fintech, Health-tech, and the like, as well as their interactions, considering the formal and informal institutional factors (Kolade, Obembe, and Salia 2019). Moreover, each of our findings could open new windows of opportunity for future researchers. First, researchers could investigate the drivers and impeding factors that could affect financial institutions and their propensity to continue their investments. Besides, they could measure the effectiveness and efficiency of appropriate cash flow management approaches and handling commitments during crises. Therefore, researchers could scrutinize different approaches and propose the most relevant ones. Secondly, as human resource management practices are critical during this period, future researchers could investigate the most effective and efficient compensation techniques and talent management practices to help startups survive. Thirdly, future researchers might use various tools and techniques to measure market volatility and investigate how creative marketing techniques could help these entities. Fourthly, they could measure the impact of crisis management, conflict management, and entrepreneurial skills on startup performance during the crisis. Finally, future researchers could use multiple-criteria

decision-making techniques to highlight the most critical challenges and rate them accordingly, and also could identify how these factors interact to shape future scenarios.

## 5.2. Implications for startups and policymakers

Governmental officials and policymakers must devise relevant policies to help the startup ecosystem players face the identified challenges (see Table 2) and help them survive. Academics and scholars could also prepare relevant courses such as “crisis management” and conduct relevant research projects to help startups during such crises. Last but not least is that the policies should be sensitive and inclusive not to harm these innovative bodies which are managed by entrepreneurs who could be the engine of economic development in the country (Kuckertz et al. [2020](#)). The following table illustrates the implications for startups and policymakers.

## 5.3. Limitations

A significant limitation of this research was the lack of access to the relevant extant literature (Kuckertz et al. [2020](#)), as the impacts of the coronavirus pandemic were unique. Moreover, previous research on crisis management by entrepreneurs and startup founders was also limited (Herbane [2019](#); Etemad [2020](#)). Besides, as the long term impacts of the pandemic are not clear, proposing implications for startups and policymakers is not applicable. Indeed, there are some short term implications and suggestions to face the crisis or exploit entrepreneurial opportunities, which are mentioned in Table 3 (Kuckertz et al. [2020](#)).

Table 3. Implications for startups and policymakers.

[CSV](#)[Display Table](#)

### Disclosure statement

No potential conflict of interest was reported by the authors.

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### Additional information

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### Notes

1 The COVID Action Platform has three main priorities: “(i) to galvanize the global business community for collective action; (ii) to protect people’s livelihoods and facilitate business continuity; and (iii) to mobilize cooperation and business support for the COVID-19 response” <https://www.weforum.org/platforms/covid-action-platform>

2 <https://www.techinasia.com/sequoia-warns-startups-turbulence-covid-19>

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